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THE SCIENCE OF ENGLISH SPELLING

BY

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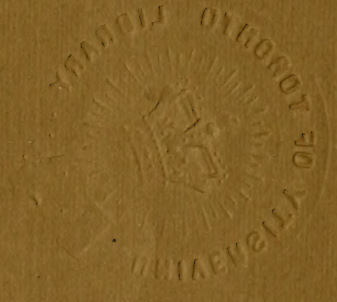

THE SCIENCE OF ENGLISH SPELLING

THE object of this paper is to submit that our English spelling is, to a great extent, already, and may become altogether, a science.

We use in our speech a good many more sounds than we have letters in our alphabet, and the genius of the language has been, and is, to supply the deficiency, not by inventing new letters, but by the use of digraphs.

If I pronounce the English name of the fifth letter of the alphabet, and ask a school boy to represent on paper the sound I uttered, he would probably write the letter "e." That would be right, for the sound is so represented in the words "he," "be," "we," "me." If I asked for another way to represent the sound, the school boy would probably write "ee." That would be right too, for the sound is so represented in "see," "seem," "feel." The two letters "ee," representing one sound, is called a digraph.

It is not necessary for us to use many consonantal digraphs, for the consonants of our alphabet nearly equal the number of our consonantal sounds.

The first consonant of our alphabet is B. A consonant closely related to B—the counterpart of B—is P, and the nasal corresponding to the pair of consonants P and B is M. That group of sounds is fully represented by letters of our alphabet. In passing it may be noted that the connection and difference between these three consonants may be easily perceived by placing one's fingers to one's ears and by saying Pe, Be, Me. The vibration, or purring, characteristic of the sonant B is thus perceived, as is the nasal modification in the case of Me.

The next group of consonants—T, D, N, or call them Te, De, Ne for a moment, to more easily see the connection

between these consonants, is also fully represented by letters of our alphabet.

But the next group has two letters wanting, and the deficiency is supplied by two digraphs, one common and one rare. The sonant of the group is J. The counterpart of J has no letter to represent it, but it is represented by the digraph Ch. That digraph should have a name, and the name no doubt should be chay. The pair of consonants, chay and jay, have as their corresponding nasal nyay—a consonant very rarely used in our speech but occurring in "banyan."

It is important to notice that our names for the greater number of the letters of our alphabet indicate the sound of the letter as a rule represents. But the seventh letter of our alphabet G is not happily named. If it were called "gay" the name would better indicate the sound the letter generally represents. Let us for a moment call the letter gay. It is the sonant of K, and the nasal corresponding to the pair of consonants kay and gay is represented by a digraph—a very common digraph—ng. Every digraph should have a name, just as every letter has a name, and, no doubt, the best name for the digraph ng is ing.

We have so far four pairs of consonants, and, in the case of each pair, its corresponding nasal. There are four, or, perhaps, five, more pairs of consonants used by us in our speech.

Of the pair of consonants F and V, each member is represented by a letter of our alphabet.

Neither of the members of the next pair of consonants is represented by a letter of the alphabet, and each is represented by the same digraph. That digraph is Th. The digraph, when it represents the first member of the pair, may best be named ith, to rhyme with "smith." When the digraph represents the sonant member of the pair the digraph may best be named "thee." This consonant "thee" is by far the most commonly used consonant in our language. It occurs in the definite article "the," which is by far the commonest

word in our language. It occurs also in the common words "that," "this," "they," "their," "than," "then," "these," "those." Yet our alphabet contains no letter to represent this our commonest consonant. The best digraph to represent the consonant would be Dh, for as D is a sonant, Dh would more clearly indicate the sound of the sonant "thee," but our usage is to represent the sound by the digraph th.

After the pairs of consonants F and V, and ith and thee, there is the pair es and zee. I use the American name zee for the sonant of the pair, because that name so much better indicates the value of the consonant.

Another pair of consonants has each of its members represented by a digraph. The pair is ish and zhee. The consonant ish occurs in the common words "should," "shall," "she." The consonant zhee is rare. The sound occurs in the words "vision," "pleasure," and "treasure."

There are two other consonants in our language which may be regarded as another—a ninth—pair of consonants. One has a letter to represent it, namely W. The other is represented by the digraph Wh. This digraph has no name. The letter W is very badly named. The pair of consonants might be named whay and way.

We have two more consonants, L and R, which have names that clearly indicate the sounds the letters represent.

We have still two more consonants which have letters in our alphabet to represent them, namely Y and H. The names of these letters do not in the least represent their values. The letters would be much better named yay and hay, or, perhaps, still better, ye and he.

So far as the consonantal sounds, at any rate the chief consonantal sounds, of our speech are concerned, each sound is represented by a letter of our alphabet or by a well-established digraph. In the case of a pair of our consonants, ith and thee, we have only one digraph to represent the two sounds, but in all other cases we have a distinct letter or a distinct digraph to represent each sound.

So far as the consonants are concerned, our spelling to a great extent is scientific. It might be altogether scientific, for it is only in comparatively few cases that a consonantal sound is represented in our writing or printing by a letter or digraph that is not the characteristic representative of the sound. The most glaring instance of the wrong use of a consonant is the use of F in place of V in the second commonest word in our language, "of." Another glaring misuse of a letter is the use of S for zee in the common words "is," "his," "as," and "has," and at the end of words, when the sound uttered is really the sonant zee.

The order of the letters in our alphabet is not scientific. The vowels and consonants are interspersed, and the connected consonants are not grouped together.

A simple and, at the same time, a scientific arrangement of our consonants and of our consonantal digraphs would be:

P	B	M
T	D	N
Chay	J	nyay
K	Gay	ing
F	V	
ith	thee	
S	zee	
ish	zhee	
whay	way	
L	R	
Ye	He	

The third letter of our alphabet does not occur in the list except in the digraph chay, for C either represents the sound definitely represented by K, or the sound definitely represented by S.

The letter X does not occur in the list. It is a useful and a scientific letter, and represents for the most part the double consonant Ks. Q does not appear in the list either. It is always followed by U, and the two letters represent the

double consonant Kw. Our commonest double consonant is nd, occurring in the third commonest word in our language —"and"; and might possibly be regarded as represented by the ligature &, which is printed at the end of most alphabets, and might almost be regarded as a letter, and would be appropriately named "and."

We use in our speech very many double consonantal sounds, as in the words "its," "most" and "stay," and we have some treble consonants, as in "first" and "against," and a few quadruple consonants, as "firsts," "twelfths"; but X and Q, and possibly the ligature &, are the only letters we have that represent any of these compound sounds.

So far as the consonant sounds of our speech are concerned, it may be said that usage has created a scientific method of representing them either by letters of our alphabet or by digraphs. What is wanted is that usage's method of representing our consonantal sounds should be recognized as scientific and taught as a science, and that unscientific representatives of these sounds be dispensed with.

It is in the representation in our writing and printing of the vowel and diphthong sounds of our speech that, if at all, we may be hopeless of our spelling ever becoming scientific.

Still, it is submitted that, if the matter is looked into, it will be found that our vowel and diphthong sounds are, for the most part, represented either by the five vowel letters of our alphabet or by digraphs, and that one of the digraphs representing each vowel or diphthong is the most characteristic representative of the sound.

The words "pat," "pet," "pit," "pot" and "but" use up the five vowels of our alphabet, and contain five of our six short vowel sounds. The use of these five letters to represent the first five short vowel sounds of our speech may now be said to be our settled usage.

A former usage was to double the consonant after the vowel to show that the preceding vowel was short, and this

usage persists in our writing and printing to a very considerable extent. We still write "egg" and "add," and "will," "well," "still," "shall," "till" and other words in which the final consonant is doubled. We also write "back," "rock," "rick" and other words in which the doubling principle is represented by C and K—C being another representative of the sound unmistakably represented by K.

Besides, in a number of words of more than one syllable, as in "matt-er," "butt-er," "dinn-er," "supp-er," "mann-er," "lett-er," "comm-on," "diff-er," there is a doubling of the consonant to indicate that the preceding vowel is short. In words like these the significance of the double consonant is often not recognized.

The sixth short vowel sound occurs most commonly in the words "could," "would" and "should," where the vowel sound is unhappily represented. The sound next occurs most commonly in the words "look" and "good," where it is represented by the digraph oo, double o. It is not a happy representative, but it is the digraph established by usage, and it is the only digraph representing the sound. The sound and the digraph occur in the common words "look" and "good," and in the less common words "cook," "foot," "hook," "stook," "wool," "crook," "shook," "rook," "nook," and in "understood," "hood," "manhood," "boyhood," "likelihood" and a few others.

It is not proposed to say much about the representatives of the first long vowel sound, as heard in the word "Baa," and in "Ah" and "Hurrah." The sound is very often represented by the first letter of our alphabet, which is the characteristic representative of the first short vowel. It is submitted that Ah is the most characteristic representative of the sound. The letter H is particularly adapted as an element of a digraph, and has been adopted by usage in the digraphs chay, ith, thee, ish, zhee and whay. The sound the letter H represents cannot be uttered after a vowel; it is not uttered in English in combination with another consonant. It is this limited use of the sound that makes the letter H so suitable for use in digraphs.

The second long vowel sound is represented at the end of a word by the digraph Ay, as in the common words "may," "day," "say," "way," "away." This digraph Ay is the most characteristic representative of the sound at the end of a word. The chief exception is in the pronoun "they," and we have "prey," "convey" and a few others on the same model. At the beginning of a word the sound is represented by the digraph Ai, as in "aim," "aid," "ain" and "ail." It is equally characteristic of our usage to change the digraph from Ay to Ai when the sound occurs between two consonants, as in "hail," "rail," "sail," "plain," "raid," "claim," "fair," "raise." The sound—the second long vowel sound—is also frequently represented by what may be called the split digraph, as in the words "make," "made," "take," "place," "grave." The sound is also represented in a few other ways. But the most characteristic representative of the sound is the digraph Ai, except at the end of a word, where it is most characteristically represented by the digraph Ay. It is submitted that Ay is the best representative of the sound, for Y, as an element of a digraph, has many of the qualifications of H.

The third long vowel seems to be the commonest of our long vowel sounds, and is characteristically represented in our language by ee (double e), as in the common words "been," "seen," "see," "seem," "indeed," "feel," and by one E at the end of a few common monosylables—"the," "he," "be," "we," "me," "she," "ye." The sound is also represented by the split digraph in the fairly common words "here" and "mere." The sound is represented by the digraph Ie, but in no very common words. The characteristic representative of the sound is well established by our usage as the digraph ee, double e.

The fourth long vowel sound is at the end of a word characteristically, and I think invariably, represented by the digraph Aw, as in "saw," "law," "paw," "draw," and is very frequently represented between two consonants by the same digraph, but in some cases the digraph Au is used—the word "because" being the commonest instance. The sound most frequently occurs in the words "all" and "call," and a number

of words are spelled on that model, but the characteristic representative is the digraph Aw. It is submitted that Aw is the best representative of the sound, for W, as an element of a digraph, stands on the same level as Y and has many of the qualifications of H.

The fifth long vowel at the end of a word is most frequently and most characteristically represented by the letter O, as in "so," "no" and "go." It is also represented at the end of a word by the digraph Oe, as in "woe," "foe" and "toe," and by the digraph Oa, as in "cocoa." At the beginning of a word and between two consonants the most characteristic representative of the sound is the digraph Oa, as in "oar," "oak" and "oath." The digraph Oa in a very large number of words, though none of them are particularly common, represents the sound—long O—between two consonants, that is medially, as it is sometimes called. A split digraph is also used to represent the sound in "more," "before," "whole," "hope" and "therefore." But the characteristic representative of long O is the digraph Oa, though perhaps the digraph Oe, though not nearly so common, is a better representative. The claims of Oh should not be overlooked, and are, considering the qualifications of H, very strong.

As for the sixth vowel sound, it is stated that it is represented in some twenty-three ways in our written language. The most characteristic representative of the sound is Oo, as in "room" and "soon." This digraph is not at all a satisfactory way of representing the sound. The sound is represented by the digraph Ue, in "true," "blue," "rue," "clue," "construe," "glue," "pursue" and "accrue." It is a sound that usage seems never to have been able to grapple with satisfactorily. The Simplified Spelling Society at one time proposed to use a digraph Uu, which is new so far as English is concerned, but it occurs in Dutch, and is an excellent representative of the sound, but the claims of Ue are very strong. The letter E is frequently used as an element in digraphs.

The digraphs Oy and Oi, and digraphs Ow and Ou, represent two other sounds of our language. The digraphs Oy

and Ow seem to be the best and most characteristic representatives, for, as already observed, Y and W have certain qualifications for use as elements in digraphs.

The letter I represents the sound which occurs in the pronoun I, and the common words "mind," "kind," "child," "find," "blind." The sound is represented by a split digraph in the words "time," "five," "side," "life" and "fine." The only digraph proper that represents the sound is Ie, as in "pie," "tie," "died," "tried," "vie" and "vied." At the end of a word the sound is often represented by Y, as in "my."

It is submitted that usage has practically already created a scientific system of spelling so far as the consonantal sounds we use in our speech are concerned. This usage has done by adding to the consonants of our alphabet the digraphs which may be named, chay, nyay, ing, ith, thee (better spelled dhee), ish, zhee, and whay.

Usage has not yet worked out a scientific system of representing the majority of our vowel and diphthong sounds. What is unscientific about our present usage is that we represent the same sound in more than one way. What has to be done is to find out the best way to represent each of our vowel and diphthong sounds about which there is any doubt. The best way really would be the way, if any, the public would accept. What that would be would be a matter of opinion.

But what would not be a matter of opinion would be how as a fact each is represented, and how often it is represented in each way. To ascertain how often a sound is represented in each way would necessitate a knowledge of the frequency with which we use in our writing and printing each word in which the sound occurs. The Rev. T. Knowles, of Cambridge, England, published a list of 353 of our most frequently occurring words, together with the number of times each word occurred in the 100,000 words he examined. Mr. Knowles has kindly given me permission to use his list, which is as follows:

The - - 8131	Some - 260	Well - - 122	Place - 84
Of - - 5074	Any - - 259	Hand - 122	Thought 83
And - - 3560	Would - 257	How - - 121	Heart - 82
To - - 3461	If - - - 252	Long - - 120	Character 80
In - - - 2271	Our - - 251	Day - - 119	Too - - 80
A - - - 2140	Out - - 247	Justice - 118	See - - 79
That - - 1727	Should - 245	Two - - 118	World - 79
Was - - 1541	When - 241	Say - - 117	Amongst 78
It - - - 1168	Than - - 238	Work - 116	Form - 78
His - - 1082		Ever - - 115	Public - 78
As - - 1033	Upon - - 231	Make - 113	Best - - 78
With - 916	What - - 224	First - - 112	Eye - - 78
Which - 915	Other - 224	Seem - - 112	Here - - 77
By - - 866	May - - 213	While - 112	Mind - - 76
He - - 866	Great - 204	Much - - 111	However 75
Not - - 854	Such - - 203	Yet - - 111	Power - 75
For - - 811	Into - - 195	Take - - 111	Act - - 74
Be - - 795	Time - - 192	Even - - 110	Themselves 73
Is - - - 730	Me - - 190	Still - - 110	Year - - 73
I - - - 722	Only - - 187		People - 73
But - - 646	These - 174	Thing - 109	Against - 71
Have - - 631	Now - - 173	Some - 107	Down - 70
All - - 605	Can - - 171	Being - 105	Country - 69
We - - 561	Man - - 170	Never - 105	Another - 68
Had - - 557	Where - 170	Though - 104	Words - 68
Were - 531	She - - 169	Under - 104	Go - - 67
Or - - 519	Love - - 168	Side - - 102	Came - 67
On - - 511	Men - - 162	Life - - 102	History - 66
Are - - 483	House - 160	Little - 102	Having - 66
This - - 481	Very - - 158	Many - 101	
They - - 478	Do - - 158	Found - 100	Room - 64
From - - 471	Must - - 155	Know - 98	Old - - 64
You - - 429	Church - 155	Nor - - 98	An - - 64
Who - - 404	Before - 153	Case-s - 97	Each - 62
Their - - 397	Said - - 152	Did - - 97	Whom - 62
Been - - 391	Then - - 151	Last - - 97	Court - 62
Him - - 384	Most - - 150	Think - 94	Saw - - 62
One - - 371	After - - 150	Come - 94	Took - 62
So - - 367	Those - 148	Part - - 93	Board - 62
An - - 354	Us - - 144	Without - 92	Himself - 62
Will - - 346	Made - 138	Good - 91	Gentlemen 62
There - 338	Every - 135	Years - 90	Because - 62
Could - 334	Party - 134	Whole - 89	Between - 62
My - - 332	Own - - 133	Through - 89	Whether - 61
No - - 318	Call - - 132	Far - - 86	Present - 61
Her - - 306	Things - 131	Way - - 86	True - - 61
Then - - 290	Your - - 127	Live - - 86	Both - - 61
More - - 289	Over - - 127	About - 84	Person - 60
Its - - 284	Look - - 126	New - - 84	Thou - 60
Has - - 268	Up - - 124	Word - 84	Mean - 60

General	60	Appeared	50	Ledge	42	Race	36
Perhaps	60	Large	50	Lady-ies	42	Position	36
Again	60	Away	50	Money	42	Important	36
Nothing	60	Thus	50	Raised	42	Human	36
Done	60	None	49	Within	42	High	36
Hope	59	Put	49	Became	42	Till	36
Does	58	Few	49	Claims	42	Past	36
Also	58	Certainly	49	Purpose	42	Almost	36
Right	58	Given	48	Ye	42	Already	34
Shall	58	Reason	48	Going	40	Brought	34
Once	58	Manner	48	Age	40	Begin	34
Certain	58	Like	48	Itself	40	Days	34
Consider	58	Fine	48	Entitled	40	Bring	34
Seen	58	Therefore	47	Always	40	Anything	34
Least	57	Order	47	Neither	40	Above	34
Course	56	Actions	46	Also	40	Three	34
Land	56	Acted	46	Sure	40	Second	34
Interest	56	Whose	46	Full	40	Real	34
During	56	Lists	46	Young	40	Point	34
Just	55	Together	46	New	40	Perfectly	34
Indeed	55	Person	46	Necessary	39	Ought	34
Subject	54	Possible	46	Feel	39	Next	34
Opinion	54	Soon	46	Object	38	Names	34
Matter	54	Went	46	Gave	38	Local	34
Taken	54	Wish	46	Water	38	Half	34
Back	54	Better	45	End	38	Further	34
Head	54	Since	45	Duty	38	Five	34
Believe	54	Common	44	Heard	38	Evidence	34
Give	54	Action	44	Something	38	Estate	34
Doubt	53	Use	44	Received	37	Either	32
Enough	53	Support	44	Left	37	Different	32
Mere	52	State	44	Address	36	Answer	32
Cannot	52	Service	44	Women	36	Principle	28
Means	52	List	44	Why	36	Concern	28
Read	51	Liberty	44	Open	36	Circumstances	26
View	50	Near	44	Especially	36		
Fact	50	Effect	44	Due	36	Difference	26
God	50	Kind	44	Speak	36	According	26
Round	50	Knows	44	Result	36	Child	25
		Quite	43				

The outstanding fact that appears from the list is that the first ten words occur so frequently that they make up 30 per cent. of the aggregate number of words used. The first sixty words form about 50 per cent. of the aggregate. After that the frequency with which a word is used slowly decreases.

A graph showing the curve of frequency can be easily constructed, allowing say an inch for every thousand times each word occurs. The graph shows very forcibly how the

commoner words bulk in the total of words used. The last word in the list is only used once in 4000 words written.

It will be asked how English spelling could be studied or taught as a science. In this way. Make a table showing how each sound in the words of Mr. Knowles' list is represented, leaving a column for each way. Suppose then a new word comes up of which it is necessary to learn the spelling. The representation of each sound in the new word will find a place in a column of the table of sounds, unless it is a new way of representing a sound, in which case a new column will have to be opened to show that new way.

In the words of Mr. Knowles' list our first six consonantal sounds, P, B, M, T, D, N, are invariably represented by the characteristic representative of the sound. The same is the case with the seventh sound—the chay sound—occurring in "which" 915, "such" 203, "church" 155, "much" 111, "child" 25.

The "J" sound is represented in three ways. First in the regular way by the letter J in "justice" 118, "subject" 54, "object" 38; secondly by the digraph "ge" in "large" 50; and thirdly by "g" in "gentleman" 62 and "general" 60.

The representation of the K sound is as follows:

by K		by "c"		by the digraph "chay"	
look	126	could	334	character	80
work	116	can	171		
make	113	call	132		
take	111	etc.			

Suppose, now, the spelling of the new word "school" has to be studied, the "K" sound in the word is represented by the digraph "ch," and the word will find a place in the column under character.

The "gay" sound is invariably represented by "G"; and the "ing" sound by the digraph "ng," except when it occurs in the double consonant "ngk," in which case the "g" is dropped as in "think" 94. A new word "ink" will find its place in the column under "think."

The F and V sounds are regularly represented, except in the case of "of," and of "enough" 53, where the digraph "gh" is used.

The "ith" and "thee" sounds are also invariably regularly represented in the words of the list.

The "S" sound is represented thus:

by S		by digraph ce		by c		by digraph se		by digraph sw	
this	481	justice	118	necessary	39	house	160	answer	32
so	367	place	84	principle	28				
its	284	once	58	circum-					
some	260	service	44	stances	26				
such	203	difference	26						
etc.									

Suppose a new word "mouse" comes up for study, it will find its place in the column under "house."

The "zee" sound is not represented in a single instance in the words of the list by its regular representative. The sound is represented thus:

by Z	by S		by digraph se	
———	was	1541	these	174
	his	1082	those	148
	as	1033	raise	42
	is	730	because	62
	has	267		
	things	131		

The "ish" sound is represented:

by sh		by digraph ci		by digraph ti	
should	245	especially	36	position	36
she	169			actions	46
shall	58			action	44
wish	46				

The "whay" and "way" sounds are regularly represented.

The H sound is also regularly represented, except that in "who" 404, "whole" 89, "whom" 62, "whose" 46, the sound is incorrectly represented by the digraph "whay."

The "ye" sound is important, and is represented thus:

by Y		by I		by e		by digraph ie		with no sign before u	
you	429	opinion	54	new	84	view	50	duty	38
your	127			few	49			due	36
yet	111			new	40			during	56
years	90							human	36
year	73							sure	40
ye	42							use	44
young	40							etc.	

The first short vowel sound—short a—occurs in about some 50 words in the list. It is almost invariably represented by the first letter of the alphabet. It is represented by the digraph "ea" in "heart" 82. It occurs in the words "have" 631 and "are" 483, in each of which words there is a silent e.

The second short vowel sound—short e—occurs in about 80 words in the list, and is almost invariably regularly represented, but in "any" 259, "many" 101, and "anything" 34, it is represented by "a"; and by the digraph "ai" in "said" 152, "again" 60, "against" 71; by the digraph "ea" in "head" 54, "already" 65; and by the doubling of the following consonant in "bett-er" 45.

The third short vowel—short i—occurs in about 60 words and is also almost invariably regularly represented. The doubling plan occurs in a few words.

The fourth short vowel—short o—occurs in 25 words, and is in most cases regularly represented by o. But we have it irregularly represented in the common word "was" 1541, and in "what" 220. There is also the doubling plan in "comm-on" 44, and "poss-ible" 46.

The fifth short vowel sound—short u—occurs in about 50 words, and has a good many irregular representatives. It is represented, besides in the regular way, in the following ways:

by split digraph		by o		by digraph ou		by digraph oo
one	371	other	224	country	69	blood
none	49	another	38	enough	53	
once	58	work	116	young	40	
done	60	world	79			
some	260	words	68			
come	94	person	60			
love	168	nothing	60			
above	34	opinion	64			
		reason	48			
		actions	46			
		money	42			
		position	36			
		second	34			

The sixth short vowel sound occurs in 8 words in the list. It has been already noted that the only digraph that represents the sound is oo, double o.

A general remark about the short vowel sounds is that they occur far more frequently than the long vowel and diphthong sounds.

So far as our consonantal sounds and our short vowel sounds are concerned, our system of representing those sounds by means of letters and digraphs is practically scientific. The whole system only seems chaotic because of a comparatively trifling number of misspelled words. It is like a few false notes in music that mar a whole composition.

We come now to the notation of our long vowel and diphthong sounds.

The first long vowel sound is unmistakably represented by the digraph ah. The sound seems to a large extent to be in the process of being replaced by the first short vowel sound, and is most frequently represented by a.

The second long vowel sound—long a—is represented in a large number of ways—by eight in the words of Mr. Knowles' list. They divide themselves into two groups. The first group is the survival of the time when the fifth letter of our alphabet was named to rhyme with the interjection eh. We have in this group the sound represented thus:

by e		by digraph ei		by a split digraph		
they	478	their	397	there	338	eight

The second group is based on the first letter of the alphabet "a," and in that group the sound is represented thus:

by digraph ay		by digraph ai		by a split digraph			by a	
may	213	raised	42	made	138	straight	lady	42
day	119	claim	42	make	113		ladies	42
say	117			take	111		taken	54
way	86			case	98			
away	50			place	84			
days	34			came	67			
				state	44			
				age	40			
				gave	38			
				race	36			

Another way of representing the sound is by the digraph ea in "great" 204; and there are some odds and ends of ways of representing the sound.

In the representation of the third long vowel sound—long e—there is always an "e." Sometimes "e" alone represents the sound, thus:

the	8131	before	even	110	these
he	866	being	enough	85	
be	795	became			
we	561	between			
me	190				
she	169				

Sometimes the sound is represented by the digraph ee, thus:

see	79	been	391
three	34	seem	112
		between	62
		seen	58
		indeed	55
		feel	39

The split digraph is used in "here" 77, "mere" 52; the digraph ea in "years" 90, etc., and the digraph ey in "money."

The fourth long vowel sound is represented in the following ways:

by the digraph aw		by digraph au						
saw	62	because	62	all	605	always	40	thought
				call	132			bought
								ought

The unmistakable representative of the sound appears to be the digraph aw.

The fifth long vowel sound—long o—is represented in 18 ways and possibly more. Almost all the ways have this in common, that each contains an o. Many of the ways can have no pretension to be characteristic, thus: "sew," "yolk," "bureau," "mauve," "yeoman," "soul," "though," "roll," "own," "owe." The other ways may be tabulated:

so	367	most	150	hoe	more	289	board	62	door
no	318	both	61		before	153			floor
go	67	almost	36		those	148			brooch
also	50	support	44		whole	89			
					hope	59			

The sixth long vowel sound is very frequently associated with the "ye" consonantal sound, and the two sounds are frequently represented by the one letter U. A few of these words have been given. The "ye" sound is by some persons not pronounced in this class of words, and the sixth long vowel sound, which is alone pronounced, is represented in these words by the letter "u." The sound is also represented thus:

by digraph ue	by split digraph	by W	by digraph oo
true 61	sure 40	new 84	too 80
	use 44	few 41	
		knew 40	

by o	by wo	by ough	by ou
to	two	through	you 429
do			your 127

If the man in the street were asked how the sound should be represented, he would probably say that undoubtedly there should be a "u" in the representation somewhere. Everyone would agree that "to" would be better written "tu," and "do" "du," and "through" "thru." W was evidently once tried as the representative of the sound but did not establish itself; it deserved a better fate. The digraph ue, considering it has a "u" in it, and that "e" is a frequent element in digraphs, might be recognized as the characteristic representative of the sound —the final "e" being dropped in "tu," "thru," "yu," and possibly in other common monosyllables. The digraph uh is a very good representative of the sound, but I do not think it is used in any English word.

In the representation of the I sound the letter I always occurs, except when the sound is represented by "y." The only digraph proper which represents the sound is ie, though there is no instance of that way of representing the sound among the words of Mr. Knowles' list. Considering that the name of the first letter in the digraph is the sound to be represented, and considering into how many digraphs the letter "e" enters as a factor, the claims of the digraph ie as the characteristic representative of the sound are very great. The final e might be dropped in common monosyllables. The

only rival to the digraph ie as a characteristic representative of the I sound is the letter Y. This is one of our letters whose name in English has no connection with the consonantal value of the letter. As a representative of the I sound, the letter is not so bad as the I sound occurs in the name. An objection to its adoption as a characteristic representative of the I sound is that in a large number of words it has a different value, that is in "any" 259, "party" 135, "many" 101, "country" 69, "history" 66, "certainly" 49, "liberty" 44, "duty" 38, "especially" 36, "already" 34, "anything" 34, "perfectly" 34. The final sound in these words is generally represented in pronouncing dictionaries as the third short vowel sound. Why I do not know, as the sound in innumerable instances in our poetry is made to rhyme with words ending in the third long vowel sound.

It will be apparent from what has been said that digraphs have almost if not altogether as important a place in our system of writing as the letters of our alphabet themsleves. A very large number of digraphs are possible, and a large number of digraphs seem to have been tried and many linger on in odd words here and there. If the question, what is the best digraph for each sound that has no characteristic letter to represent it, is fairly faced, a solution in each case would probably be found. I propose tentatively for the long vowels and digraphs

ah, ay, ee,
aw, oh, ue,
ie, oy, ow.

It is submitted that the only reasonable and common-sense way to teach spelling is to teach the spelling of words in the order of their frequency. We have Mr. Knowles' list of words, which is reprinted in this pamphlet. A much longer list of words was published by Mr. R. C. Eldridge of Niagara Falls, U.S.A., but his list was based on the examination of less than half the number of words that Mr. Knowles examined. A new list based on an examination of at least a million words is wanted. Proper names should be included in their order,

for of course they have to be spelled as well as other words. The best place to find the words would be in letters to editors of newspapers. Each Province and State might with advantage prepare a separate list; a number of lists based on the examination of 100,000 words in each case could easily be combined into a general list.

It is also obviously commonsense that time should not be wasted over teaching and learning the spelling of a word perhaps of infinite rarity, which has no claim to notice except that it is irregularly spelled.

Apart from spelling as a mere matter of memory, spelling could be taught even to the youngest or almost to the youngest children as a science.

Fancy what that would mean. Fancy the drudgery that would be taken out of the school lives of our children.

Teach spelling as a science and the level of the teaching profession would be at once raised.

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Holmes, William Cuthbert
The science of English spelling.

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